

10/567688
Application No.: ~~10/576,688~~

REMARKS

Claims 1-3 are pending in this application, with claim 1 being independent. Claims 1-3 have been amended. No new matter has been introduced. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that all pending claims are in condition for allowance.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,966,398 ("Karube") in view of U.S. Patent No. 6,067,498 ("Akiyama"). Applicants respectfully traverse these rejections for at least the following reasons.

As amended, claim 1 recites a gas laser oscillator comprising, among other features, a laser gas flow pipe constituting a circulation route of laser gas between a discharge part and a air blower; a gas supply apparatus having at least one valve, and supplying laser gas to the laser gas flow pipe; a main ejection apparatus having at least one valve and ejecting laser gas out from the laser gas flow pipe; a sub ejection apparatus having a pipe ejecting the laser gas from the driving part of the air blower; a detector for detecting an amount of laser gas flowing through the laser gas flow pipe; and a clogged pipe judge part judging the laying pipe of the sub ejection apparatus to be clogged when the detected amount of the laser gas is smaller than a predetermined value.

To illustrate one non-limiting implementation, Application describes on page 9, line 15 to page 10, line 20 that

Sub ejection apparatus 26 can be clogged with oil mist with an elapse of time. In this case, an amount of gas ejected by sub ejection apparatus 26 becomes significantly smaller than an amount ejected by main ejection apparatus 25, so even if sub ejection apparatus 26 is clogged decreasing an amount of ejection, a corresponding amount of gas is ejected through main ejection apparatus 25, not significantly changing a total amount of gas going out from vacuum pump 27 from 10 L/hour. Because of this reason, even if an amount of gas ejected from vacuum pump 27 is directly monitored, or indirectly monitored using already mentioned opening and closing cycle of supply valve 31, detecting a change in an amount of ejected gas caused by clogged sub ejection apparatus 26 may be

10/567688
Application No.: ~~10/576,688~~

difficult. Even if a threshold is setup, a malfunction may be generated, hence this method is not practical.

A point of this invention is in ejection valve 32 installed in main ejection apparatus 25. In an ordinary state where an air blower is blowing and a laser oscillator is oscillating, ejection valve 32 is opened. However, if valve 32 is closed for a certain period of time while the oscillator is in motion, vacuum pump 27 drains gas ejected only through sub ejection apparatus 26. When sub ejection apparatus 26 is not clogged by oil mist or the like, ejected amount of gas from vacuum pump 27 does not practically change from 10 L/hour. This is because a gas pressure is naturally balanced so as the gas which is otherwise ejected through main ejection apparatus 25 is ejected through sub ejection apparatus 26. On the other hand, when sub ejection apparatus 26 is almost entirely clogged by oil mist or the like, closing of ejection valve 32 greatly reduces an amount of gas drained by vacuum pump 27 from the initial state of 10 L/hour down to 1 - 2 L/hour for instance.

Thus, clogged laying pipe judge part 41 can monitor the amount of gas decreased by vacuum pump 27 when ejection valve 32 is opened and closed. By comparing both of the amounts, or by comparing the amount with a predetermined value, the judge part can detect clogging status of sub ejection apparatus 26. When abnormality is found, alarm part 43 disposed beside such as clogged laying pipe judge part 41 generates an alarm urging a user to clean inside sub ejection apparatus 26. Thus, invasion of oil mist originated from oil 32 in driving part 22 into laser gas flow pipe 10 can be prevented.

Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1 and its dependent claims because Karube and Akiyama, either alone or in combination, fail to describe or suggest a gas laser oscillator comprising, among other features, a detector for detecting an amount of laser gas flowing through the laser gas flow pipe and a clogged laying pipe judge part judging the pipe of the sub ejection apparatus to be clogged when the detected amount of the laser gas is smaller than a predetermined value, as recited in claim 1 (emphasis added).

Akiyama relates to a method for detecting an engine abnormality. Akiyama at Abstract. The method includes measuring the engine output, the values of specific operating variables of the fuel system, the lubrication system, the cooling system and so forth and comparing the measured values to the corresponding threshold value and based on the result of the comparison detecting an abnormality in the system. Akiyama at col. 2, lines 17-29. Applicants respectfully submit that nowhere Akiyama describes or otherwise a gas laser oscillator comprising, among other features, a detector for detecting an amount of laser gas flowing through the laser gas flow pipe and a clogged laying pipe judge part judging the pipe of the sub ejection apparatus to be

10/567688

Application No.: ~~10/567,688~~

clogged when the detected amount of the laser gas is smaller than a predetermined value, as recited in claim 1 (emphasis added). Karube is similarly deficient in this regard. In fact, Karube is completely silent about detecting clogging in a pipe and mentions nothing about a gas laser oscillator comprising, among other features, a detector for detecting an amount of laser gas flowing through the laser gas flow pipe and a clogged laying pipe judge part judging the pipe of the sub ejection apparatus to be clogged when the detected amount of the laser gas is smaller than a predetermined value, as recited in claim 1 (emphasis added).

The Office Action seems to realize that neither one of Karube and Akiyama describes or suggests the above-recited features. *See e.g.*, the Office Action at page 3, line 11 to page 4, line 17. However, the Office Actions asserts that these features are insignificant since they are inherently contained in the operation described in the specification. *Id.* Applicants pointedly disagree. Indeed and as pointed out above, Applicants respectfully submits these features, in one aspect, are essential in defining the invention, and they are expressly (not inherently) described in the Application.

Additionally, Applicants respectfully submits that in imposing a rejection under 35 U.S.C. §103, the Office Action is required to point to "page and line" wherein an applied reference is perceived to identically disclose each feature of a claimed invention. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). Here, by merely stating that the above-recited features are insignificant and inherent in the operation of the specification, the Office Action has failed to meet this requirement. As such, Applicants respectfully ask that if the Examiner wishes to maintain this rejection, the Examiner points out

10/567688
Application No.: ~~10/567688~~

the page and the line number where each of the above-recited features are disclosed in the prior art.

For the foregoing reasons, Applicants respectfully request that the § 103 rejection of claim 1 and its dependent claims be withdrawn.

Dependent Claims

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Because claim 1 is allowable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also allowable. In addition, it is respectfully submitted that the dependent claims are allowable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 103 be withdrawn.

Conclusion

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicant's attorney at the telephone number shown below.

10/567688
Application No.: ~~10/56688~~

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Michael E. Fogarty
Registration No. 36,139

Please recognize our Customer No. 53080
as our correspondence address.

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 MEF:llg
Facsimile: 202.756.8087
Date: November 7, 2007

WDC99 1488016-1.043890,0786